

ABSTRACT

The present invention provides a thermomechanical treatment means for a Fe-Mn-Si-based shape memory alloy having specified components with Nb, C addition with
5 simple deformation prior to aging. Such deformation treatment prior to aging is carried out in the inventions of the prior applications in a temperature range of from 500°C to 800°C. According to the present invention, however, the deformation treatment prior to
10 the aging treatment can be successfully carried out not at high temperature but at room temperature, if the deformation ratio is in a specified range.

The technical meaning of the present invention must be clearly understood as compared to the prior art
15 and the inventions of the prior applications because the present invention allows the treatment at room temperature while the others require troublesome treatment at high temperature so that there is significant difference therebetween. That is, according
20 to the present invention, the remarkable improvement in shape memory property is achieved first time by a combination of specified alloy components, specified deformation ratio at room temperature, and setting of aging condition to a certain range. With the development
25 of the present invention, it is expected that the use of shape memory alloys will be accelerated toward the practical use in a wide variety of fields.